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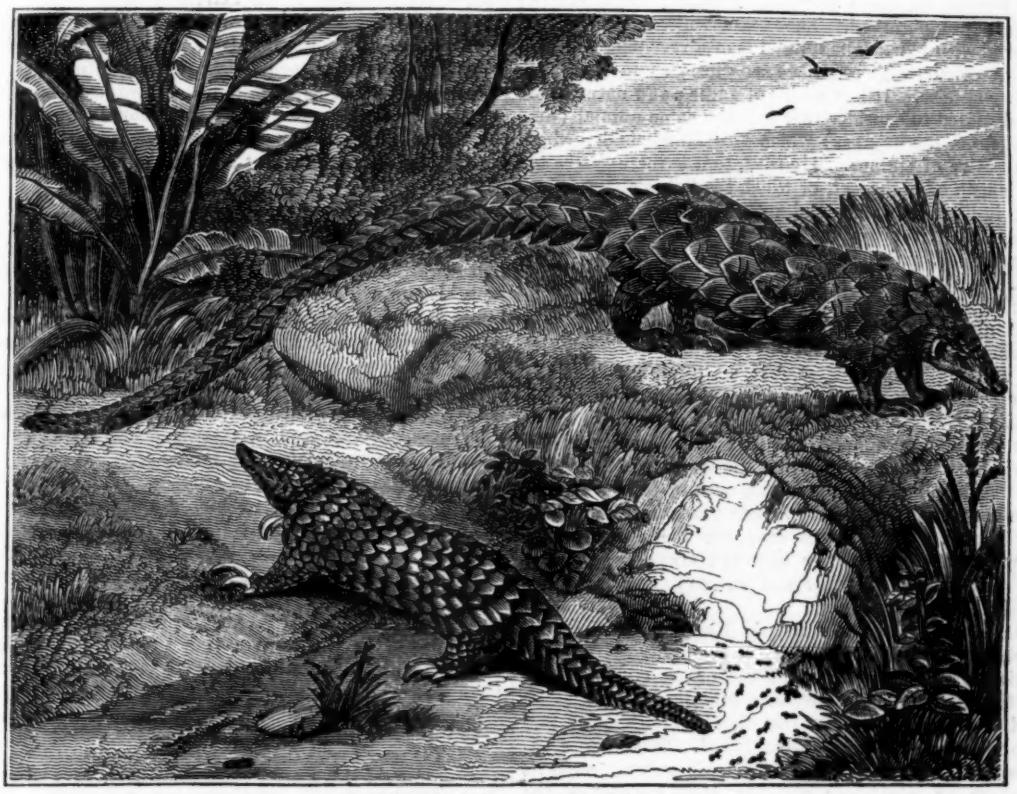
THE MANIS.



[Long and Short-tailed Manis.]

The animals of this genus (*Manis*) present an appearance quite as extraordinary as that of the armadillo tribe; being covered on every part, except the belly, with exceedingly strong, large, and horny scales. These, when the animals roll themselves up, furnish a suit of armour by which they are defended much more effectually than even the armadillo is against the assaults of their enemies. This armour is a compensating circumstance in their structure, giving them the security which, from their want of teeth, their inability to grasp with their feet, and their perfectly harmless nature, they would otherwise want. The external covering, together with the unusual length of the body and tail, gives to these creatures an appearance so much resembling that of the lizard, that they have been called "scaly lizards." These animals have, however, no proper alliance with the lizard tribe; yet, on a general view of the animal kingdom, they may be admitted to be a link in the chain of beings which connects the proper quadrupeds with the reptile class.

With the exception of their scaly covering, the animals of this genus have much resemblance to the ant-eaters in their structure and general habits. Like them they live by thrusting their long tongue into the nests of ants and other insects, and then suddenly retracting it into their mouths and swallowing their prey. They are natives of India and the Indian isles. Our engraving represents the two species of the genus which are distinguished as long-tailed and short-tailed.

The long-tailed or four-toed manis (*manis tetradactyla*) is known in India by the name of the phatagen. It is of a very long and slender form. The head is small and the snout narrow. The whole body, except beneath, is covered with broad but sharp-pointed scales, which are striated, or divided by small channels like those of cockle-shells, throughout their whole length. The throat and belly are covered with hair. The tail is more than twice the length of the body, and tapers gradually to the tip. The legs are very short: each foot is furnished with four claws, of which those of the fore-feet are stronger than those of the hind. Both the tail and the legs are scaled in the same manner as the body. The colour of this animal is of an uniform deep brown, with a cast of yellowish, and with a glossy polished surface. It grows to the average length of five feet, from the tip of the nose to the extremity of the tail.

The short-tailed or five-toed manis (*manis pentadactyla*) is generally called in India the pangolin, but in Bengal it is called, in the Sanscrit language, *vajracite*, or the thunderbolt reptile, on account of the excessive hardness of its scales, which are said to be capable of even striking fire like a flint. This species differs from the former in being of a much thicker and shorter form. The tail in particular is very differently proportioned, not being so long as the body: it is very thick at the base, and from thence tapering gradually, but terminating very obtusely. It has also five instead

of four claws to each foot; of which those on the fore feet are of great strength, excepting the exterior one, which is much smaller than the rest. This species is scaled in the same manner as the preceding, but the scales differ in shape, and are much larger and wider in proportion to the body and tail. In the larger specimens of this species of pangolin the scales are smooth; but in those that are smaller they are slightly striated about half way from the base. In some specimens a few bristles are found between the scales; but in others this is not observed. The parts without scales are covered with hair. The animal is of a very pale yellow-brown colour, with a surface as glossy as in the preceding species. It is a native of India; and naturalists are disposed to consider that it is the same animal (the Quogelo of the negroes) which Des Marchais describes as a native of Guinea. He says, that it there grows to the length of eight feet, of which the tail is about four; that it lives in woods and marshy places, feeding on ants, which it takes by laying across their paths its long tongue, which is covered with a viscid matter, so that the insects which attempt to pass it cannot extricate themselves. It walks very slowly with its claws bent under its feet, and would be the prey of every ravenous beast, had it not the power of rolling itself up, and opposing to its adversary a formidable defence of erected scales. The hungry leopard then vainly assails it with its powerful claws, and after much fruitless exertion is obliged to leave it in safety. The pangolin endeavours to elude the vigilance of man by retiring into holes in the rocks, or into burrows of its own excavation, where the female produces and suckles her young. The negroes despatch the animal with blows of a stick, sell the skin to Europeans, and eat the flesh, which is white and savoury, and is highly relished by the natives.

It is stated in the 'Asiatic Researches' that the Malabar name of this animal is *alungu*, and that the natives of Bahar call it *bajar-cit*, or the stone-vermin. In the stomach of the specimen examined by Mr. Burt, and described by him in the above work, about a tea-cup full of small stones were found. There were indeed no traces of animal or vegetable substances in its stomach or intestines; and Mr. Burt inclines to the opinion that it is capable of digesting and deriving nourishment from mineral substances. It is more reasonable to conclude, however, that stones and gravel are merely swallowed by the pangolin to assist digestion. The tongue in the specimen (a small one) examined by Mr. Burt was about the thickness of the little finger at the root, tapering from thence to a point; and when dissected out, it was capable of being extended to a length more than equal to that of the animal exclusive of the tail. The specimen was a female, and her organs were those of a viviparous animal. This it was important to notice, because Buffon had stated it as a general principle that all quadrupeds covered with scales are oviparous *.

In the sixtieth volume of the 'Philosophical Transactions,' a figure is given of a species of this animal which is there called the new manis, and which Pennant classes as a new species under the name of the broad-tailed manis. Dr. Shaw, in his 'General Zoology,' follows the precedent, but doubts that it is a distinct species. It has five toes on the fore, and four on the hind-feet. The belly is quite smooth. The tail is very broad, decreasing to a point. This specimen was killed in the house of a merchant at Tranquebar, having been discovered in the cavity of a wall. When pursued, it rolled itself up in such a manner as to leave only the back and tail visible, and was destroyed with great difficulty.

The animal mentioned in the 'Asiatic Researches' presents some small differences from that described under the name of pangolin by Buffon; and the last-named broad-tailed species is somewhat different from both. Alluding to this, Dr. Shaw observes:—"These differences do not seem sufficient to constitute a specific distinction, and are probably owing to the differences of age and sex. In the British Museum are specimens of different sizes which show those gradations. In one the scales all over the animal are so regularly and completely truncated at the extremity as to exhibit the appearance of so many hexagons. In another, they are remarkably broad and rounded; and in a third, which is a very large specimen, they are less obtuse at the tips and somewhat irregularly terminated, as if notched or worn through age. The proportional breadth of the tail also varies somewhat in these specimens, and seems greatest in those that are least advanced in age."

* Asiatic Researches, vol. ii., p. 353, &c. Calcutta, 4to. edit.

ROBERT SOUTHWELL.—No. II.

It has been well remarked of Southwell as a writer, that his prose is, as such, more flowery and imaginative than his verse. The charm of goodness of nature and kindness of heart, united with the purest morality, distinguishes his writings; and while they afford constant traces of a poetical imagination, we discover that he seems as if afraid to trust himself in the fairy-land of poesy, lest he should imbibe some of its illusions. This dread he appears to throw off in preparing his prose; one consequence of which is, that while his verse is in general marked by gentleness and simplicity, his prose is characterized by energy and passion.

The longest and most laboured of Southwell's poems is 'St. Peter's Complaint,' consisting of 112 six-lined stanzas, in which the apostle laments his guilt in having denied his Master. This is one of the only two of his works in the British Museum. It is followed by three short poems in the same style; from one of which, called 'St. Peter's Comfort,' we extract the following passage:—

"The lopped tree in time may grow again;
Most naked plants renew both fruit and flower;
The sorriest wight may find release of pain,
The driest soil suck in some moist'ning shower;
Times go by turns, and chances change by course,
From foul to fair, from better hap to worse.

The sea of Fortune doth not ever flow,
She draws her favours to the lowest ebb;
Her tide hath equal times to come and go;
Her loom doth weave the fine and coarsest web:
No joy so great but runneth to an end,
No hap so hard but may in fine amend.

Not always fall of leaf, nor ever spring;
No endless night, nor yet eternal day:
The saddest birds a season find to sing;
The roughest storms a calm may soon allay.
Thus with succeeding turns God tempers all,
That man may hope to rise, yet fear to fall."

Among Southwell's minor poems there is one which is too long to insert entire; but as we are unwilling to omit it altogether, we extract the stanzas which will best bear separation from the context,

"My conscience is my crown,
Contented thoughts my rest;
My heart is happy in itself,
My bliss is in my breast.

My wishes are but few,
All easy to fulfil;
I make the limits of my power
The bounds unto my will.

I fear no care of gold,
Well-doing is my wealth;
My mind to me an empire is *,
While grace affordeth health.

* The writer of the popular verses beginning with—
"My mind to me a kingdom is,"
appears to have kept this poem pretty closely in view.

I clip high-climbing thoughts,—
The wings of swelling pride;
Their fall is worst, that from the height
Of greatest honour slide.

Since sails of largest size
The storm doth soonest tear,
I bear so low and small a sail
As froeth me from fear.

* * * *

No change of Fortune's calm
Can cast my comforts down:
When Fortune smiles, I smile to think
How quickly she will frown.

And when in froward mood
She prov'd an angry foe,
Small gain I found to let her come,—
Less loss to let her go."

'Mary Magdalen's Funeral Tears' is numbered among Southwell's prose works, although it seems to us to be, in all but metre and rhyme, the most essentially poetical of his compositions. Indeed, his original editors would seem to have regarded it as a poem. It is printed in the same volume with St. Peter's Complaint, and the title is, "St. Peter's Complaint and St. Mary Magdalen's Funerall Teares. With sundry *other* selected and devout Poems. By R. S., of the Society of Jesus." The piece is of essentially the same character with the 'Complaint,' it being composed of the lamentations of Mary Magdalen at the tomb of Christ, with comments on her circumstances, in the same style of composition with her complaints.

As we have room for only one specimen of Southwell's prose, we prefer to take it from his letter to his father, which has been already mentioned in the notice given of his life. With some alterations and omissions, it appears under the title of "The Dutiful Advice of a Loving Son to his Aged Father," in Sir Walter Raleigh's "Remains," to which work, not knowing where to refer for the original, we turn for the following extract:—

"Remember that you are now in the waning, and the date of your pilgrimage well nigh expired, and now that it behoveth you to look towards your country. Your force languisheth, your senses impair, your body droops, and on every side the ruinous cottage of your faint and feeble flesh threateneth the fall: and having so many harbingers of your death to premonish you of your end, how can you but prepare for so dreadful a stranger? The young man may die quickly, but the old man cannot live long: the young man's life by casualty may be abridged, but the old man's by no physic can be long adjourned: and therefore if green years should sometimes think of the grave, the thoughts of old age should continually dwell in the same.

"The prerogative of infancy is innocency; of childhood reverence; of manhood maturity; and of old age wisdom. And seeing, then, that the chiefest properties of wisdom are, to be mindful of things past, careful of things present, and provident for things to come, use now the privilege of nature's talent to the benefit of your own soul, and procure hereafter to be wise in well doing, and watchful in the foresight of future harms. To serve the world you are now unable; and though you were able, yet you have little cause to be willing, seeing that it never gave you but an unhappy welcome, a hurtful entertainment, and now doth abandon you with an unfortunate farewell. * * * * Remember, I pray you, that your spring is spent, your summer overpast, you are now arrived at the fall of the leaf; yea, and winter colours have long since stained your hoary head.

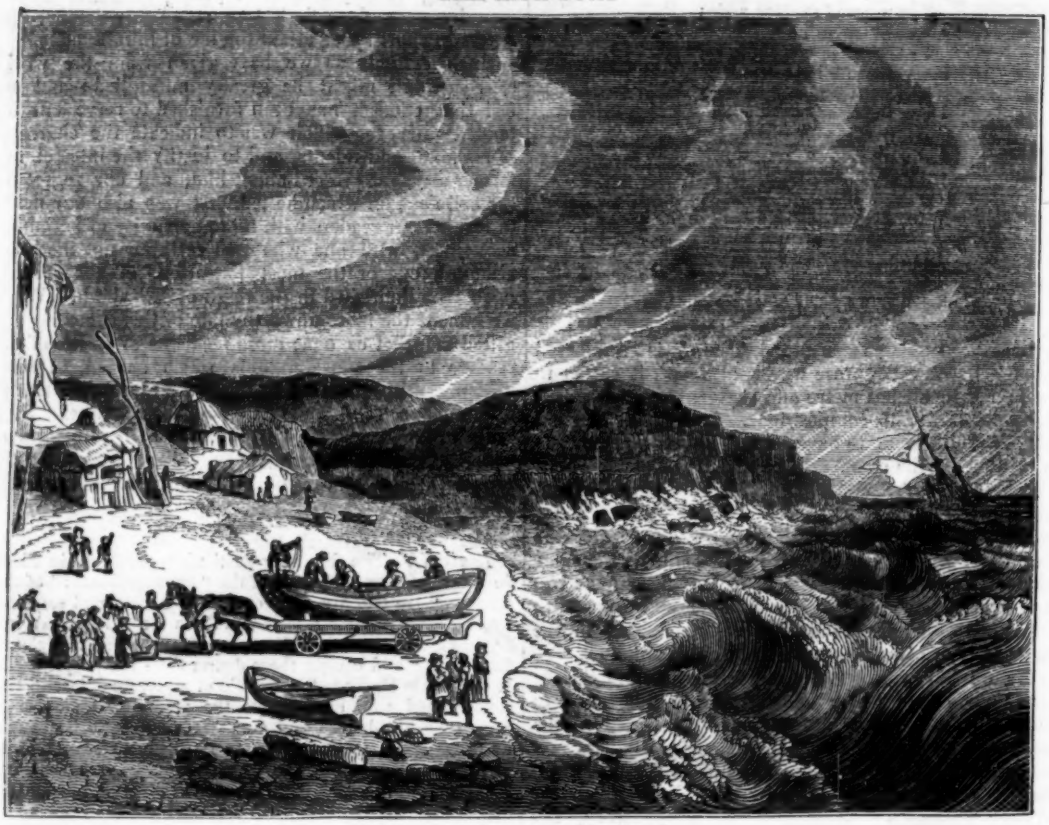
"He that is tossed with variety of storms and cannot come to his desired port, maketh not much way, but is much turmoiled. So, he that hath passed many years, and purchased little profit, hath a long being, but a short life: for life is more to be measured by well doing than by number of years; seeing that some men by many days do but procure many deaths, and others in short space attain the life of infinite ages."

Such extracts as we have given from the works of Southwell might be greatly multiplied; but we feel that enough has been furnished to serve our intended purpose, which was to indicate the character of his mind and talents, and to justify the interest our former article expressed about him, and our regret for the evil days on which he fell. It was also our desire to furnish our readers with an opportunity of becoming acquainted with one who was certainly not the least, although one of the most forgotten, of the seventy poets who flourished in the reign of Elizabeth. While we lament the most unworthy fate of this excellent and gifted man, let us once more recal the attention of our readers to the considerations which should, in some measure, mitigate the severity of the reprehension with which we might visit the doings of former times. It is only by reference to the feelings and principles of action which are contemporary with events, that the events themselves can be completely or instructively understood.

Louis XI.—The following particulars are found in Philip de Comines' enumeration of the "strange fancies" of this prince. "He had a mighty curiosity for dogs, and sent into foreign countries for them (as well as for his horses), into Spain for one sort, into Bretagne for another, to Valentia for a third; and bought them dearer than the people asked. He sent into Sicily to buy a mule of a private officer in that country, and paid him double the value. At Naples he caused all the horses and strange creatures to be bought up that could be found; and, in Barbary, a sort of lion, no bigger than a fox, which he called adits. He sent into Sweden and Denmark for two sorts of beasts those countries afforded, one of them called an elk, of the shape of a stag and the bigness of a buffalo, with short and thick horns; the other called rengeiero, of the shape and colour of the fallow-deer, but their heads much larger,—for each of which he gave the merchants 4500 Dutch florins. Yet when all these varieties were brought him he never valued them, and many times would not so much as see the persons that brought them to his court."

Corean Repasts.—A little after noon, two large boats came off, bringing a complete Corean dinner for the whole crew, consisting of chicken-broth, with vermicelli, slices of pork, salads, and various sorts of cake, and bowls of honey, with jars of wine. It was explained to us that the chief's kin and the general had sent this entertainment for the ship's crew, and had come to partake of it with us. Evidently this was meant to compensate for the apparent inhospitality shown to us on shore; and as, apparently, the chiefs were hitherto acting on their own responsibility, and might perhaps be liable to the severe displeasure of an arbitrary despot for what encouragement had been afforded us, it would have been ungracious on our part not to have shown ourselves sensible of the kindness of their attentions. We therefore expressed ourselves much pleased, and directed the tables to be ranged out on deck. The front of the poop was carpeted for ourselves and the chiefs. The customs of the Coreans at their meals, it appears, are similar to the Japanese. Each guest has a separate little table, about a foot high, before him. The chop-sticks used are like the Chinese; but they carry a small knife at their girdle to cut their meat with. Most of the dishes, though cold, proved so palatable, that we ended by making a very hearty repast, greatly to the delight of the chiefs. Before they went, I asked when an answer might be expected to our letter. The reply was, "Wait in peace for a few days." On a previous day, I had given a list to kin of the various articles of stock and provisions we needed for the ship, requesting to be allowed to purchase them; but, as this was objected to, I said I would be happy to comply, and receive them as a present. These having not yet come, I gave another list to the general, which he promised should be sent the following day.—*From Parliamentary Papers relating to the Ship Amherst.*

THE LIFE-BOAT



[Preparing to Launch the Life-Boat.]

The heavy seas which break upon the rugged coast of Northumberland and Durham render that part of the country the frequent scene of disastrous shipwrecks. In the year 1789, the ship Adventure, of Newcastle, was stranded, on the south side of Tynemouth Haven, in the midst of tremendous breakers. The crew climbed up into the shrouds for safety, from whence they dropped into the sea in the presence of thousands of spectators, not one of whom dared to venture out to their assistance in the common description of boats, although stimulated by the prospect of a high reward. The inhabitants of South Shields were so strongly affected by this melancholy occurrence that a public meeting was called, at which a committee was formed, and empowered to offer premiums for plans of a boat on a principle which should render it impossible to sink in the heaviest sea. Among many which were laid before the committee, that of Mr. Henry Greatheed obtained the most general approbation; and, in pursuance of their orders, the first life-boat was constructed by him, and launched on the 30th of January, 1790. The value of this invention was soon fully proved, and its importance to our mercantile navy acknowledged. Mr. Greatheed had made his models public, and therefore did not himself receive those advantages which, in justice, he ought to have derived from his ingenuity. In 1802 he accordingly petitioned the House of Commons, for the purpose of obtaining from the nation such reward as, in consideration of these circumstances, he might be thought to deserve. The petition was referred to a committee, which particularly directed its inquiries as to the utility of the life-boat, and the originality of the invention claimed by Mr. Greatheed. On the first point, several old seamen and persons employed in shipping were examined. One of the former stated that he had himself been in the life-boat, and had seen her go off scores of times, and never saw her fail in bringing away the crew from wrecks or vessels in distress. No other boat could have gone from the shore at the time the life-boat went. He also stated that, in the event of the life-boat filling with water, she would still continue upright, and not founder, as boats of the common construction did. He had seen her come ashore so full of water that it ran over each side. Another individual had been witness to the wreck of several ships at the same time. Out of one vessel the life-boat took fifteen men, who would otherwise inevitably have perished, as the ship went to pieces immediately after, and the wreck came on shore almost as soon as the boat. The crew of one of these vessels took to their own boat, which sunk, and all but two were lost. It was stated that, on one occasion, when the boat was full of water, the crew all went to one side, in order to try the possibility of upsetting her, which they were unable to accomplish. At the time when this committee was appointed, twelve years had elapsed since Mr. Greatheed's invention, during which period at least three hundred persons had been brought on shore from wrecks and ships in distress off Shields alone. It was fully established that no sea, however high, could upset or sink the life-boat. The originality of the invention being also clearly due to Mr. Greatheed, Parliament voted him the sum of 1200*l.*, "as a reward for his invention of the life-boat, whereby many lives have already been saved, and great security is afforded to seamen and property in cases of shipwreck." The subscribers to Lloyd's presented Mr. Greatheed with 100 guineas, and voted 2000*l.* for the purpose of encouraging the building of life-boats in different ports of the kingdom. Two years afterwards, the Emperor Alexander presented Mr. Greatheed with a valuable diamond ring.

Owing to the dangerous character of the Durham and Northumberland coast, and the quantity of ship-

[The Life-Boat in a Storm.]

ping belonging to our north-eastern ports, the life-boat is oftener launched here than from any other part of the kingdom; and, under the guidance of its crew, more frequently snatches the mariner from destruction.

The great characteristic of the life-boat is its buoyancy. It possesses this requisite quality in consequence of the bottom being hollow and perfectly air-tight; and the sides are also surrounded by several boxes, or compartments, which are also air-tight. We believe that boats are coming into use provided with a set of copper-tubes. One upon this plan has lately been constructed at Sunderland. The division of the sides into several parts prevents the boat being endangered in case of its being struck by a cross wave. This, however, can seldom occur, because both ends being formed alike, the direction of the boat can be changed without exposing it to the rude shocks to which it would be subjected by turning from one point to another in a tempestuous sea. It is also contrived that when the boat ascends the waves any water which it may have shipped passes out at the lower end; and there are also a number of holes at the bottom, through which whatever remains is immediately discharged. The Sunderland boat was built in the year 1800, ten years after Mr. Greatheed's invention had become known. It is twenty-six feet in length, and the width is nine and a-half feet. This boat, on one occasion, would have been knocked to pieces by a cross sea but for the division of the side into various parts. In the bottom are six air-holes, which are so proportioned to the size and gravity of the vessel that, when full of water, it is discharged in forty seconds. She is managed by six or ten men, as the urgency of the case may require, two of whom steer with seventeen-feet oars. The oars are secured in their places by a coiled rope. The boat is preserved in repair, and its crew paid, by a small impost on ships entering the harbour. When out of service, it is kept under a substantial shed near the beach, mounted upon a four-wheeled carriage. As soon as the thrilling cry "A wreck!" is heard, the lieutenant of the boat assembles his men; and, after a survey of the ill-fated ship, each proceeds to his place in the boat. When all their arrangements are completed, two or more horses are harnessed to the carriage, and the boat is drawn to the water's edge. By a mechanical contrivance, the frame of the carriage is then brought into a sloping position, and the boat is launched amid the breakers to pursue its benevolent enterprise.

The men who compose the crew of a life-boat often acquire a sort of moral dignity, occasioned by the exercise of the manly virtues which a faithful discharge of their duties demands, and the sympathetic feelings to which they are habituated by the nature of their vocation. A fine fellow at Tynemouth said to the artist who made the sketches which accompany this description, patting the sides of his boat as if it were a favourite animal, "Have you made a picture of my boat, Sir? She's a good one, and has been with me at the saving of twenty-seven lives in one morning."

We find the following hints in Mr. Greatheed's 'Instructions for the Management of Life-Boats:'—The boats, in general, of this description, are painted white on the outside; this colour more immediately engaging the eye of the spectator when rising from the hollow of the sea. The person who steers her should be well acquainted with the course of the tides, in order to take every possible advantage: the best method, if the direction will admit of it, is to head the sea. The steersman should keep his eye fixed upon the wave, or breaker, and encourage the rowers to give way as the boat rises to it; being then aided by the force of the oars, she launches over it with vast rapidity, without shipping any water. It is necessary to observe that there is often a strong reflux of the sea occasioned by the stranded wrecks, which requires both dispatch and

care in the people employed, that the boat be not damaged. When the wreck is reached, if the wind blows to the land, the boat will come inshore without any other effort than steering."

In case of a ship being stranded on a part of the coast where the services of the life-boat are inaccessible, it has been recommended to fasten a boom to the boat's bow, by which means the violence of the waves are broken. In a treatise on 'Practical Seamanship,' by Mr. Hutchinson, an instance is mentioned of the preservation of ten men in a small boat only twelve feet long, by means of a log of wood tied to the boat's bow, which kept her end on to the waves, and preserved her from filling with water.

MINERAL KINGDOM.—Section XXXV.

Gold.

This metal possesses above all others the qualities of utility and beauty, without any deleterious property. It has been in all times regarded as the most perfect and most precious of the metals, and among the more civilized nations has been the standard of value for other commodities. Its peculiar rich hue is well known; and it is the only metal of a yellow colour. In its pure state it is as soft as tin, and is very flexible, but it is capable of receiving a high lustre by polishing with a burnisher, although inferior in brilliancy to steel, silver, and mercury. It possesses little elasticity or sonorousness. Its specific gravity is 19·30—that is, it is more than nineteen times heavier than water, bulk for bulk. In *malleability* it exceeds all other metals; for one grain of it can be beat out into a leaf so thin as not to exceed $\frac{1}{282,000}$th part of an inch in thickness, and which will cover fifty-six square inches; in this state, notwithstanding the high specific gravity, it will float in the air like a feather. But even that is not the extreme limit to which it is capable of being extended; for a coating of gold, which is calculated to be only one-twelfth part of the above thickness, is produced by another process: if a silver wire be covered with gold, it may be drawn out into wire of still greater fineness, and retain a coating of gold; and one grain of gold will in this way coat a surface of wire about two miles and three-quarters in length. In *ductility* it also exceeds all other metals; that is, it can be drawn into finer wire than any other. In *tenacity*, however, it is greatly inferior, standing only fifth in order, in respect of that property when compared with other metals: a wire $\frac{1}{12}$th of an inch in thickness will not support a greater weight than 150 lbs., whereas iron wire of the same diameter will sustain a weight of 550 lbs. without breaking. It is not a perfectly opake body like all the other metals, for gold leaf transmits a green light; as may be conveniently observed by laying a leaf between two thin plates of colourless glass, and holding it between the eye and a strong light. It is less fusible than silver, and more so than copper: Mr. Daniel estimates its melting point to be at a heat equal to 2016° of Fahrenheit's scale. It is the most perfect of all conductors of heat; that is to say, if heat be applied to one end of a rod of gold, it will be transmitted from particle to particle, and become sensible at the other extremity of the rod more quickly than through any other substance in nature. Thus while the conducting power of a rod of porcelain is represented by a velocity of 12, of lead by 179, of iron by 374, the velocity of gold is 1000. Gold may be exposed for ages to air and moisture without undergoing any alteration; and a quantity of it has been kept for thirty weeks in a melted state in a glass-house furnace without the loss of a single grain, and without any change in its nature. But if a small portion of it be intensely heated by electricity, or by the oxy-hydrogen blow-pipe, it burns with a greenish blue flame, and is dissipated in the form of a purple powder.

Gold is found, almost universally, in the native or metallic state; but it is seldom quite pure, being generally alloyed, in greater or less degree, with other metals, and usually with silver, copper, or iron. The Prussian chemist, Klaproth, found a native gold from the Altai Mountains to contain as much as 36 per cent. of silver; and Professor G. Rose, of Berlin, by more recent analysis, has found a specimen from the same district to contain 88 per cent., and another from Hungary nearly 39 per cent. He found the gold of the Ural Mountains to contain from 2 to 15 per cent. in general; but one variety so free from foreign admixture as to contain nearly 99 per cent. of pure gold. Boussaingault has found the native gold of Colombia to contain from 2 to 36 per cent. of silver. It is found in veins in the primary and older sedimentary rocks, and also in the unstratified rocks that are associated with these, such as granite, porphyry and hornblende rock; and sometimes, also, in the more ancient of the secondary strata. The veinstone in which the gold occurs is most generally quartz. In Transylvania small quantities of an ore have been found, in which gold is in combination with a considerable proportion of the rare metal *Tellurium;* and there is a kind of iron-pyrites—that is, a sulphuret of iron,—not of very unfrequent occurrence, which contains minute scales of pure gold interposed between the laminæ of the pyrites. When gold occurs in veins in solid rocks, it is sometimes regularly crystallized. In the splendid collection of minerals belonging to the Russian noble, Prince Demidoff, there are many beautiful crystals of gold from the Ural Mountains. By far the greatest proportion of this metal, in all countries which produce it, is obtained from alluvial soils, or deposites, where the gold is found in scales, grains, and lumps, rounded by attrition: so that the metal has evidently been derived from pre-existing rocks, in which it was disseminated either in minute scales or veins, and which have been broken up; the fragments having been abraded by the action of water in the same manner as the pebbles of tin-stone in the stream-works of Cornwall, and other places. For the sake of convenience, we shall call this "*stream-gold.*" It is found in the sand and gravel of the beds of many rivers and smaller streams in most countries of the world; but the chief quantity is met with in extensive alluvial deposites, formed by other aqueous causes than the water of existing rivers. The lumps of gold, in such situations, are of very various sizes; and masses have been found in the Ural Mountains of eighteen and twenty pounds weight,—in Columbia, of twenty-five pounds; and one is said to have been found near La Paz, in Peru, of nearly forty-five pounds weight, the value of which, if estimated at 3*l.* 10*s.* per ounce, would be 1890*l.* A considerable portion of stream-gold appears to have been derived from auriferous pyrites; for almost all the sands from which this metal is gathered are of a deep blackish-brown colour, and are highly ferruginous. It is a remarkable and not a very explicable circumstance that, in countries which contain deposites of alluvium rich in gold, and the materials of which must have been derived from rocks at no very great distance, it has rarely happened that the attempts to find the metal in the neighbouring rocks have been successful. It may be asked, how gold comes to be so often found in alluvial soils, and that other metals should not be met with in the same way? Platinum is so found, and so is silver, but only very rarely. The reason is, that the ores of other metals are liable to decomposition by exposure to air and moisture; and, therefore, although they might have been originally in fragments, like the other materials of the rocks that were broken up, they would gradually disappear by decomposition; whereas

the gold, from its indestructible nature, remains unchanged, except in form. In the same way stream-tin has been preserved, because the oxide of tin is not affected by air and moisture.

To describe the methods employed to separate gold from the other minerals with which it is combined would lead us into somewhat tedious details. The great value of gold makes searching after minute quantities profitable, which would never be practised with other metals. The usual mode of separation is by a process called *amalgamation*, which is founded on the property which mercury (or quicksilver) has of combining very readily with gold, and of being easily separated from it again by the application of heat. The etymology of the word is Greek, viz., *ama*, *together*, and *gameo*, *to marry*; expressive in this way of the union of the gold with the quicksilver. Amalgamation is effected in this manner: the ore, broken to pieces and freed as much as possible from stony impurities, is reduced to powder, and made up into a paste with salt and water. Quicksilver in proper proportion is added, and the whole is well beaten and shaken together, and kept at the temperature of boiling water for some days, till the union is effected; after which the earthy matter is washed away, and the residue is subjected to distillation, by which the quicksilver is separated, and at the same time recovered in great part, and the gold, usually containing a little silver, is left behind. This is the usual process followed in Mexico and South America. In Hungary the gold is generally purified by another process, called *cupellation*. This depends on the property which lead and copper, the metals with which the gold is there mixed in the ores, have of attracting oxygen from the air when exposed to a strong heat, and which the gold does not. The ores are well roasted, to drive off the sulphur they usually contain, and are fused in several successive operations. The metallic mixture, freed from stony matter thus obtained, is put into a vessel made of bone-ashes called a *cupel*; it is made of that material because it forms a porous texture, and is, at the same time, very refractory in the fire. A strong blast of intensely-heated air is now made to pass over the metal in a state of fusion, and the lead and copper becoming oxidated, are absorbed by the cupel, or skimmed off, and the gold is left behind. The lead is the great agent, for its oxide is easily fusible into a glassy substance, which sinks into the cupel, carrying the other impurities along with it; so that if the ore does not naturally contain much lead, a portion is added. We have described these processes only very generally: there are many delicate manipulations in the mode of conducting them, upon which success in the result greatly depends.

In our next section we shall proceed to describe the principal sources from which gold is derived. The 'Historical Inquiry into the Production and Consumption of the Precious Metals,' by William Jacob, Esq., may be consulted with advantage by those who are desirous of minute information; and we have ourselves relied upon it for many of the facts contained in the following sections.

THE CHAMPIONSHIP OF ENGLAND.

THERE are some estates, held by grant from the Crown, which confer a title or dignity on their possessor; such is Arundel Castle in Sussex, in right of which the Duke of Norfolk claims the Earldom of Arundel, and such is the manor of Scrivelsby in Lincolnshire, which constitutes the Dymokes Champions of England.

Scrivelsby, or Scrivelsby Court, as the Champion's residence is generally called, lies about three miles to the south of Horncastle, and is a very elegant mansion, which has lately been modernized. The grounds about it are well wooded, and laid out with taste, so that, altogether, Scrivelsby forms, what is not very common in that part of the county of Lincoln, a highly-picturesque residence.

Of the origin of the office of Champion no very satisfactory information can be given; but we know that William the Conqueror introduced it into England, and that the person who was first honoured with the title was Robert de Marmyon, Lord of Fontenoy, who bore the Duke's banner at the battle of Hastings, and had preserved the life of his sovereign in the field. William rewarded this faithful follower by the grant of several manors in the newly-subjugated country, and among the rest that of Tamworth, in the county of Stafford, and that of Scrivelsby in the county of Lincoln, attaching to the possession of the latter the honourable office of being *Champion to every future King of England*.

The duty required of the Champion was, that on the day of the Coronation he should, in complete armour, and mounted on a good war-horse, come into the presence of the King and all his Court, and make proclamation, that if any one dared to gainsay the right and title of the King to the Crown of England, or that he ought not to enjoy it, that man was a liar and a traitor; and that he (the Champion) was ready to prove it upon him by single combat, on what day soever he should appoint. He was then to throw down his glove, or gauntlet, and, according to the custom of the time, whoever took it up was considered to accept the challenge.

Besides the permanent holding of the manor, the Champion, at every Coronation, was entitled to a gold cup and cover, the horse on which he rode, which was stated to be the second best in the King's stables, with its saddle and furniture, a complete suit of armour, and twenty yards of crimson satin: these perquisites of office form a valuable and interesting heir-loom in the armoury at Scrivelsby Court.

The first that bore the office in this country was, as we have seen, Robert de Marmyon; and it seems, with the manor of Scrivelsby, to have remained in that family till the twentieth year of Edward I., when Philip, the last male heir of the Marmyons died, and left two daughters: the eldest took for her dowry the manor of Tamworth, and the youngest that of Scrivelsby; and she being married to Sir Thomas Ludlow, he, in right of being the owner of the manor, became Champion, and his grand-daughter and heiress, marrying Sir John Dymoke, conveyed Scrivelsby and the Championship into that family in the twenty-third year of King Edward III.

This remaining practice of a barbarous and warlike age has now ceased to be dignified or grave, in consequence of the great changes which the usages and feelings of society have undergone. The stability of the Crown would certainly not be impaired if this now absurd though once expressive ceremony were abolished, and another tenure substituted more consonant to common sense and the spirit of the age.

CHESTERFIELD CHURCH AND ITS CROOKED SPIRE.

WHOEVER approaches Chesterfield, either from the north or the south, must be struck with the singular appearance of the spire of its church, which, instead of being perpendicular, is evidently much bent towards the west. It is singular that almost every writer who has had occasion to mention Chesterfield has called this appearance an optical deception, arising from the twisted form of the leaden planes which cover its surface. Even Mr. Rickman, in his work on 'Gothic Architecture,' says,—"The *apparent* leaning of the

spire arises partly from the curious spiral mode of putting on the lead, and partly from a real inclination of the general lines of the wood-work of the spire." But had he walked out of the town to the eastward, or to the westward, he would have seen this crooked spire assume a perfectly perpendicular appearance, for in one case the bulging, and in the other the hollow part of the steeple would be towards him, and consequently the crookedness would be lost; or, had he ventured to mount the tower, and walk round the base of the spire, he would have seen on the south, or rather at the south-western angle, the ball at the summit almost vertical to his head, while on the opposite side the same ball would be hidden from the sight by the swelling of the middle of the spire. These observations would at once have proved the fact, that this curious steeple is not *apparently* but *really* crooked. To place its real crookedness beyond a doubt, the situation of the ball was subjected to a careful measurement some years since, when it was found to deviate from the perpendicular six feet towards the south, and four feet four inches towards the west, giving its greatest angle of inclination somewhere near to the south-west angle.

Chesterfield Church is a beautiful and spacious edifice. Its ground plan is that of a single cross; and at the intersection of the two arms arises a well-proportioned and elegant square tower, surrounded by a plain simple parapet, bearing at each angle an octagonal pinnacle surmounted by a rod and weather-vane. On this tower is placed the spire, which, but for its crookedness, would be thought of very just proportions. It rises to the height of 230 feet, exclusive of the rod which bears the weathercock; and is built of timber, and covered with lead in such a manner as to divide each octagonal side into two distinct and channelled planes, giving it altogether a singular and, indeed, a unique appearance. Its dark colour, however, and the want of brackets to break the outline, add an appearance of heaviness to the general effect which is utterly at variance with the other parts of the building.

The interior of the church consists of a nave, two aisles, a transept, and chancel. Its length from east to west is 168 feet 9 inches, breadth of the body 59 feet 6 inches, and length of the transept from north to south 109 feet 6 inches. It has been newly paved, and is in every respect a very comfortable and commodious place of worship.

It is stated in the newspapers that, on Sunday evening the 8th of February, 1835, two churches in the neighbourhood of Huddersfield in Yorkshire were struck by lightning; that from one several stones were forced out of the spire, but that the spire of the other (Linthwaite Church) "was struck in such a manner, that, without any of the stones being shattered, *the spire was bent out of its perpendicular, and now inclines towards the church*, so that it is thought there will be a necessity for taking it down." This occurrence may throw some probable light on the manner in which Chesterfield spire was reduced to its present position, though no record can be found of any such event, and the long lapse of years in which it has appeared in the same state has thrown every tradition respecting it into oblivion.

Currency.—The word *raha*, which signifies money in the Esthonian language, has not yet lost its primitive acceptation with the Laplanders, amongst whom it designates skins or furs. Among the different kinds of money which formerly circulated in Russia was one which bore the name of *nogata*. The Esthonians, who were once comprised in the Russian Empire, use the word *nahat* for skins. The change of the vowel *a* into *o*, and the *h* aspirated into *g*, is so familiar in the Russian language that the word appears to be exactly the same in both. M. Krug, a member of the Academy of Sciences at St. Petersburgh, published, in 1805, a work containing curious researches on the circulating medium anciently in use in Russia. The most valuable furs were those of the squirrel, marten, beaver, sable, and ermine; they formed an important article of exportation, and they were in demand in all countries. The Khosars, the Varaigues, and, at a later period, the Mongols, raised in furs the taxes that they imposed on the Selavonians and Russians when they were obliged to purchase a peace. Pecuniary fines were fixed in products of this nature; indeed they often served as a standard by which the price of their merchandise was determined. The value of furs was at that period much greater than they bear at present. In the time of Marco Polo,—*i. e.* in the thirteenth century,—a pelisse of sable could be sold in China for two thousand Byzantine ducats. even in the sixteenth century, according to Paul Jovius (Paolo Giovio), it sometimes fetched one thousand ducats. But, notwithstanding the ancient Russians made use of furs in place of specie, the precious metals were not excluded from this function. In Abyssinia, the value of merchandise is determined by certain quantities of salt and pepper; in Newfoundland, by a certain quantity of dried cod-fish; in Virginia, by tobacco; in Iceland, by a woollen cloth called *vataul*. At Kiahta, pieces of nankin even yet sometimes serve for the purpose of determining the value of the goods which the Russians exchange with each other; and among the Greeks of the Lower Empire, silk stuffs often performed the same function. In India, the high price of metals, even of the common description, has occasioned little shells to be adopted for small change. These shells are the current money of Mogol, Bengal, and Boutan; also of the interior of Africa and of the Guinea coast. At the time when America was discovered, the Mexicans made use of the kernels of the cocoa-nut as money. (Translated from *Storch's Political Economy.*)

Anecdote of Barry the Painter.—While Barry was a young man, residing at Dublin, an incident occurred which strikingly illustrates the character of the man. He was brought into contact with some young persons of dissipated habits, who on several occasions enticed him to form one of their tavern parties. As he was returning home late at night from one of these carousals, he was struck by a sudden conviction of the folly of the course he was pursuing in thus wasting the time which might so much more properly be employed in laying the foundation of his future respectability and independence. Diffident perhaps of his own power of foregoing the gratifications which he had the means of purchasing, and certain that the most effectual preventive would be to rid himself of the means at once,—he took all his money, which was probably at that time no great sum, and threw it into the Liffey, and afterwards shut himself up with great perseverance to his professional studies.—*Life of Barry prefixed to his Works.*

Famine in London.—Walsingham gives the following strong picture of a famine in London in the reign of Edward II. "They [the king and peers] assembled at a Parliament in London, where no great matter was concluded, for the famine and pestilence increased. The famine was grown so terrible, that horses, dogs, yea, even men and children, were stolen for food, and (which is horrible to think) the thieves newly brought into the gaols were torn in pieces, and eaten presently by such as had been longer there. In London it was proclaimed that no corn should be converted to brewers' uses: which act the king (moved with compassion towards his nation) imitating, caused to be executed throughout the kingdom; otherwise the greater part of the people had died with penury of bread. The dysentery, caused through raw and corrupt humours, engendered by evil meat and unnatural diet, raged everywhere, and, together with other dreadful maladies, brought such multitudes of the poorer sort to their end, that the living could scarcely bury the dead."

*** The Office of the Society for the Diffusion of Useful Knowledge is at 59, Lincoln's Inn Fields.

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